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United States. Agricultural
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Growing ground covers

THE NEW YORK BOTANICAL GARDEN

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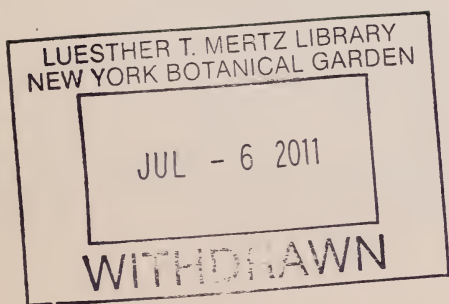
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GROWING GROUND COVERS



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GROWING GROUND COVERS

Prepared by
Crops Research Division, Agricultural Research Service

Ground covers include a wide range of low-growing plants. They can be used to—

- Cover bare areas of ground.
- Prevent erosion of the soil.
- Give variety in the yard or garden.
- Regulate foot traffic in the yard or garden when used as edging for pathways.
- Tie together unrelated shrubs and flowerbeds in the landscape.

Many kinds of annuals or perennials may serve as ground covers. Broad-leaved evergreens are the best, but conifers and deciduous plants also are suitable.

Plants can be propagated at home, but home propagation is slow. Usually plants that you buy from a nursery grow better than home-propagated plants. Nursery plants are already established in containers and ready for planting.

Ground covers range in size from plants as short as grass to shrubs 3 or more feet high. Creeping and dwarf lilyturf, for example, cover the ground like grass, but cotoneaster and juniper depend on the matting of stems and leaves or the interlocking of branches to cover the ground. Ground covers usually maintain themselves with a minimum of care once they become established.

Because the thick, spreading growth of ground covers helps to delay the alternate freezing and thawing of the soil, these plants may grow better in cold climates than most upright plants. This is especially true in areas where snow covers the ground in winter or the planting is mulched with pine needles, straw, or branches.

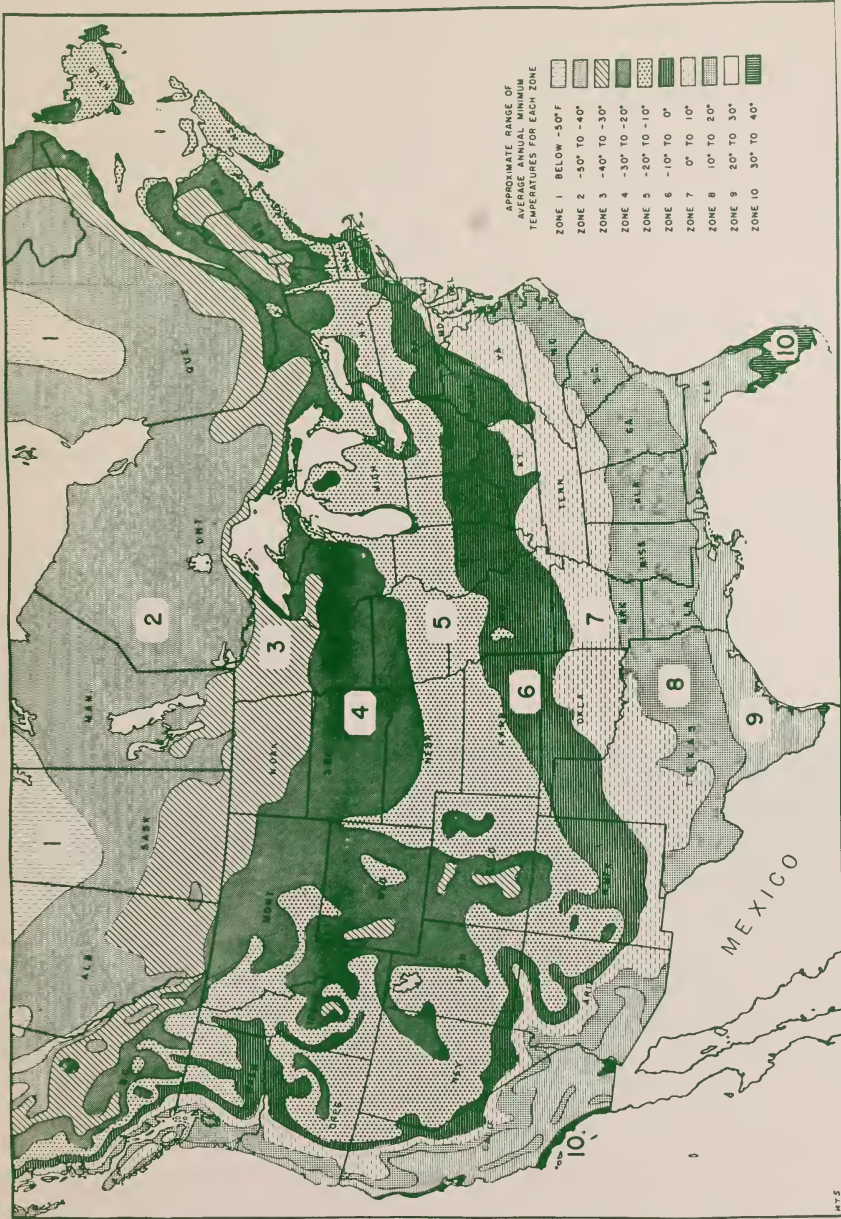
Ground covers are least adapted to areas of low rainfall and low humidity. For example, in the dry areas of the Southwest, they are usually grown only where they can be sprinkler irrigated.

Plants described in this bulletin are keyed to numbered hardiness zones shown on the map on page 3. The temperatures shown for each zone are based on average minimum temperatures taken from long-term weather records. Soil type, rainfall, summer temperatures, daylength, and other conditions also govern whether a plant can thrive without unusual attention. But a plant hardiness map is the most useful single guide to plant adaptability.

The following alphabetical list gives a brief description of the most commonly grown ground covers.

**Barrenwort, *Epimedium alpinum*,
E. grandiflorum, and *E. pinnatum*,
Zones 4 to 8.**—Barrenwort grows to

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The Zones of Plant Hardiness

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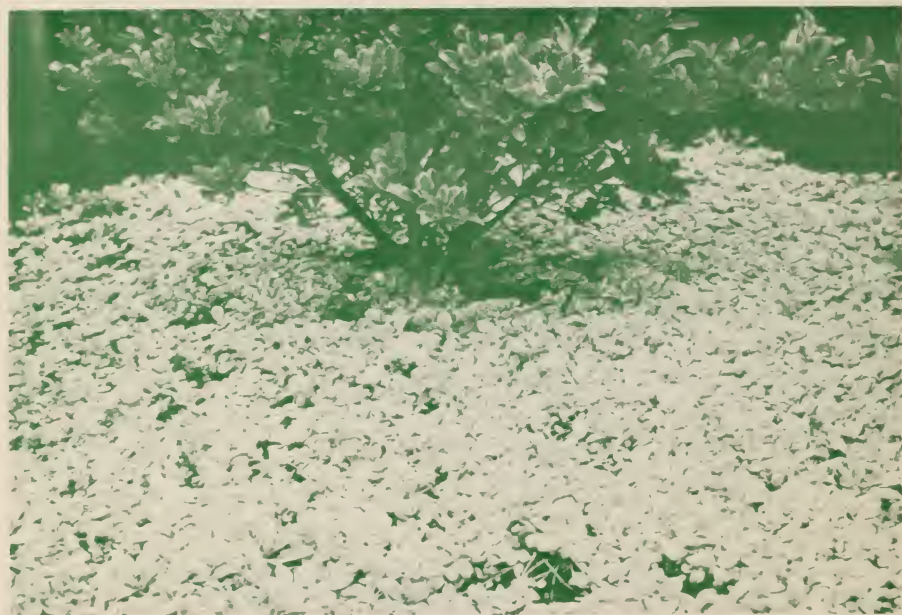
12 inches tall and maintains a uniform height throughout the season. The foliage is dense and often lasts well into the winter. The flowers are white, yellow, or lavender. Barrenwort grows well in semishade, tolerates almost any soil, and is particularly useful as an underplanting for evergreens and shrubs. Propagate by dividing the plant.

Bearberry, *Arctostaphylos uva-ursi*, Zones 2 to 9.—Bearberry is a fine-textured, broad-leaved evergreen 6 to 10 inches high with trailing stems, dark lustrous foliage, and bright red fruit. It is excellent for stony, sandy, or acid soils and is particularly suited for sandy banks. Because of its hardiness, bearberry grows well along the northern tier of States where soils are acid. It is hard to transplant and

should be obtained as a sod or as a pot-grown plant.

Bugleweed, *Ajuga reptans*, Zones 5 to 9.—Bugleweed is a creeping perennial 4 to 8 inches tall bearing blue or purple flowers. It thrives in either sun or shade, is a rapid grower, and tolerates most soil conditions. Bugleweed can be used alone or in combination with other small plants. Propagate by planting seed or by dividing.

Capeweed, *Lippia nodiflora*, Zones 9 and 10.—Capeweed is a creeping perennial 2 to 4 inches tall that is often used in sand dunes and waste areas. The leaves are greenish to purple and the flowers are light pink. Because it is low-growing, spreads rapidly, and thrives in sun or shade, capeweed is often used as a grass substitute. It withstands trampling, can



Bugleweed

BN-33710

be mowed like grass, and is more drought resistant than common warm-season lawn grasses. Propagate by planting sod pieces or making stem cuttings.

Coralberry, *Symphoricarpos orbiculatus*, Zones 3 to 9; and *S. chenaultii*, Zones 5 to 9.—Coralberry is a deciduous shrub that grows to 3 feet tall. It spreads rapidly by underground stems and thrives in poor soil in full sun or partial shade. The foliage is fine textured, and the plants form neat mats where a tall cover is acceptable. Propagate by dividing or by making cuttings.

Cotoneaster, *Cotoneaster adpressa*, and *C. apiculata*, Zones 5 to 9; *C. dammeri* and *C. horizontalis*, Zones 6 to 10; and *C. microphylla*, Zones 7 to 10.—The cotoneasters are flat, horizontal-growing plants 6 to 30 inches high that bear bright red berries. They make excellent ground covers, especially on banks and in rough areas. Most of the cotoneasters are subject to fire blight, red spider, and lace bug. *C. apiculata* appears to be the hardiest of the group. All do best in full sun and are often used as accent plants in combination with other ground covers. Cotoneasters are self-seeding and you may grow them from seedlings that appear in the area, or you may propagate them by making cuttings.

Cowberry, *Vaccinium vitis-idaea*, Zones 5 to 9.—Cowberry is a small evergreen shrub that grows to 12 inches tall and makes excellent ground cover in acid soils. It bears small pink flowers and dark-red ber-

ries. Cowberry will not tolerate summer heat and is limited to regions with cool, moist climate. Propagate by dividing, making cuttings, or layering (rooting a branch by burying it in the soil with only the tip protruding).

Creeping Lilyturf, *Liriope spicata*, Zones 5 to 10.—This grasslike, evergreen perennial grows to 12 inches tall and does well in heat, dryness, intense sun, or deep shade. The leaves are dark green and the flowers are purple. It grows in almost any kind of soil and can stand exposure to salt spray without injury. Once established, creeping lilyturf forms a dense mat from which small divisions can be removed for propagation.

Creeping Thyme, *Thymus serpyllum*, Zones 5 to 10.—Creeping thyme is an evergreen that bears purplish flowers and is used as edging or between stepping stones. It rarely exceeds 3 inches in height, it tolerates dry soils and full sun, and it is excellent in small areas as a substitute for grass. Propagate by dividing.

Crownvetch, *Coronilla varia*, Zones 3 to 7.—Crownvetch is used frequently to cover dry, steep slopes. It grows 1 to 2 feet tall and bears small pink flowers. Crownvetch spreads by underground stems, and a single plant can cover up to 6 feet of ground in all directions. It grows best in neutral soil but tolerates slightly acid conditions. Propagate by making cuttings or by seeding at the rate of 20 pounds per acre. Buy seed that has been scarified (hulls cut) to improve germination and inoculated to introduce bacteria for nitrogen fixation.



BN-33709

English Ivy

Daylily, *Hemerocallis*, Zones 3 to 10.—Daylily thrives along banks in both dry and boggy soil. It blooms throughout the growing season and is seldom attacked by insects or diseases. Propagate by dividing.

Dichondra, *Dichondra repens*, Zones 9 and 10.—Dichondra has runnerlike stems that spread rapidly. It seldom grows more than 1 to 2 inches tall and rarely needs clipping. Dichondra grows well in either sunny or shady locations. Do not dig around the plants; if weeds appear, pull them by hand. Poor drainage and winter cold may cause alternaria root rot. Propagate by replanting small clumps.

Dwarf Bamboo, *Sasa pumila*, *Sasa veitchii*, and *Shibataea kumasaca*, Zones 6 to 10.—The dwarf bamboos

are excellent grass substitutes and can be mowed and treated like warm-season grasses. The foliage turns brown in winter and new growth does not start until late spring. Propagate by dividing or by replanting small clumps.

Dwarf Hollygrape, *Mahonia repens*, Zones 6 to 9.—Dwarf hollygrape is an evergreen shrub that grows to 10 inches tall and makes a good ground cover in sun or shade. It grows rapidly in any kind of soil. The flowers are yellow. Propagate by dividing.

Dwarf Lilyturf, *Ophiopogon japonicus*, Zones 7 to 10.—Dwarf lilyturf grows to 10 inches tall and is similar to creeping lilyturf in most charac-

teristics, except that dwarf lilyturf is not as hardy in the North. Propagate by dividing.

Dwarf Polygonum, *Polygonum Reynoutria*, Zones 4 to 10.—Dwarf polygonum is a deciduous plant 1 to 2 feet high that grows in full sun, is extremely hardy, and spreads rapidly. It grows well in rocky or gravelly soil. The foliage turns red in autumn. Propagate by dividing.

English Ivy, *Hedera helix*, Zones 5 to 9.—English ivy is an evergreen 6 to 8 inches tall. It has coarse foliage, forms a dense cover, and is often used where it can spread on the ground and then climb adjacent walls. It grows in either shade or full sun. Propagate by pulling vines free and rooting them in a new site.

Germander, *Teucrium chamaedrys*, Zones 6 to 10.—Germander is a small woody perennial that grows to 10 inches tall. It is excellent as a border for walks. Germander grows well in sun or partial shade. A winter mulch may be needed in areas where the ground freezes. Propagate by dividing or making cuttings.

Goldmoss Stonecrop, *Sedum acre*, Zones 4 to 10.—Goldmoss stonecrop is good ground cover for dry areas and it grows only 4 inches tall. It spreads by creeping and forms mats of tiny foliage, which make it particularly useful between stepping stones and in rocky places. Propagate by dividing or making cuttings.

Ground-ivy, *Nepeta hederacea*, Zones 3 to 9.—Ground-ivy is a creep-



Goldmoss Stonecrop

BN-33705

ing perennial that grows to 3 inches tall and forms a low mat. It does well in either sun or shade. It is considered a weed in lawns and may become a pest if not confined. Propagate by dividing.

Heartleaf Bergenia, *Bergenia cordifolia*, Zones 5 to 10.—Heartleaf bergenia is a creeping, clumpy perennial that grows to 12 inches tall and has thick, heavy foliage. It grows well in sun or partial shade and produces pink flowers in May. Propagate by dividing or planting seed.

Honeysuckle, *Lonicera japonica*, Zones 5 to 9.—Honeysuckle is a climbing, twisting, fragrant vine with evergreen to semievergreen foliage and flowers that are at first white and then turn yellow. It grows well in sun or partial shade, but it can get out of bounds and may become a serious pest, covering trees and shrubs. It must be pruned yearly for control. Propagate by dividing or making cuttings.

Iceplant, *Cephalophyllum*, *Carpobrotus*, *Delosperma*, *Drosanthemum*, *Malephora*, and *Lampranthus*, Zone 10.—Iceplant is excellent evergreen ground cover for banks and roadsides. It produces brilliant flowers that open only in full sunlight. In cold climates, iceplant makes good temporary summer ground cover for newly prepared sloping banks until grass can be planted. Propagate by planting seed.

Japanese Holly, *Ilex crenata*, Zones 6 to 10.—Japanese holly is a low-growing evergreen that can be

kept down to 2 feet tall. When planted in mass, it makes a good medium height ground cover for small banks and semishaded areas. Because Japanese holly is slow growing and requires special equipment for propagation, it is established best from nursery plants.

Japanese Spurge, *Pachysandra terminalis*, Zones 5 to 8.—Japanese spurge is an evergreen that grows to 6 inches tall. It spreads by underground stems, covers quickly, and is excellent cover under trees and in other semishade. It should not be planted in full sun. Japanese spurge is sometimes attacked by scale. Propagate by dividing or making cuttings.

Juniper, *Juniperus horizontalis* and *J. sabina*, Zones 3 to 9; *J. procumbens*, Zones 4 to 9; and *J. chinensis* and *J. conferta*, Zones 4 to 10.—Juniper is an excellent evergreen ground cover that usually grows 1 to 2 feet tall. The growth varies from low, spreading plants to upright but the plants rarely get more than 3 feet tall. The various species have different colored foliage that ranges from light green to steel blue and often turns purple in winter. Juniper grows well on slopes and banks and in other sunny, dry areas. Propagate by making cuttings.

Memorial Rose, *Rosa wichuraiana*, Zones 5 to 9.—Memorial rose is a low-growing, trailing plant 6 to 12 inches high with semievergreen foliage and white flowers 2 inches in diameter. It grows well on banks and sand dunes and is highly tolerant to salt spray. The stems will root wher-



BN-33706

Japanese Spurge

ever they touch the soil. Propagate by planting seed or making cuttings.

Moss Sandwort, *Arenaria verna*, Zones 2 to 9.—Moss sandwort is a

low-growing, mosslike perennial 3 inches high that is particularly suited for small areas and between flagstones. It requires fertile soil, moist partial shade, and some winter pro-



BN-33708

Periwinkle

tection in cold, exposed sites. Propagate by dividing or by planting seed.

Periwinkle, *Vinca minor* and *V. major*, Zones 5 to 10.—Periwinkle is an evergreen, trailing plant that has dark-green foliage and purple, blue, or white flowers. *Vinca minor* grows 6 inches tall and has small leaves; *V. major* grows 8 inches tall and has large leaves. Periwinkle grows well in full sun or partial shade, is especially useful on rocky banks, spreads in all directions, and is easily propagated. Avoid high nitrogen fertilizer and poorly drained soil; plants easily rot at soil line. Bulbs may be interplanted to give spring color. Propagate by dividing or by making root cuttings.

St. Johnswort, *Hypericum calycinum*, Zones 6 to 10.—This semievergreen shrub grows well in semishade

and sandy soil. It grows 9 to 12 inches tall and its bright yellow flowers appear in midsummer and continue until frost. The foliage turns red in autumn. Propagate by planting seed, dividing, or making cuttings.

Sand Strawberry, *Fragaria chiloensis*, Zones 6 to 10.—Sand strawberry spreads rapidly and is similar in appearance to strawberry plants that are cultivated for fruit. It grows in most soils, particularly sandy types. Propagate by dividing.

Sarcococca, *Sarcococca hookeriana*, Zones 6 to 10.—Sarcococca is a shrubby evergreen 6 feet tall that has glossy, leathery leaves 1 to 2 inches long and small, white flowers. This ground cover grows in shade, spreads by underground stems, and is used as edging for large plants and around

the base of trees. It must be sheared to control its height. Propagate by dividing or by making cuttings.

South African Daisy, *Gazania rigens*, Zones 9 and 10.—The South African daisy grows 6 to 9 inches tall and has light green foliage and orange flowers. It blooms continually during spring and summer. Once established, it will thrive for the entire season with little water. No serious pests or diseases attack the South African daisy in dry climates. Avoid high-nitrogen fertilizer and poorly drained soil; plants rot easily. Propagate by planting seed.

Strawberry geranium, *Saxifraga sarmantosa*, Zones 7 to 9.—Strawberry geranium is a perennial that grows to 15 inches tall and spreads by run-

ners. It grows best in partial shade and may be used around the base of other plants, in rock gardens, and in areas of heavy clay or loam. Propagate by making cuttings.

Wandering Jew, *Zebrina pendula*, Zone 10.—Wandering Jew is a perennial 6 to 9 inches high that grows easily in the shade and roots readily. It is a tender plant but is excellent ground cover in both acid and alkaline soils. Propagate by dividing or by making cuttings.

Weeping Lantana, *Lantana sellowiana* and *L. Montevidensis*, Zones 8 to 10.—Weeping lantana is a trailing shrub that has hairy branches up to 3 feet long. Many kinds are available in a wide range of colors. Lantana grows best in sunny sites, is highly salt tol-



Wintercreeper

BN-33711

erant, and does well regardless of soil quality. It is frequently mixed with junipers or used as a hanging cover for walls. Propagate by making cuttings or by planting seed.

Wintercreeper, *Euonymus fortunei*, Zones 5 to 10.—Wintercreeper is a clinging evergreen vine with uniform leaves and a rapid, almost flat growth. It is a good cover for banks and slopes because it keeps its leaves

through the winter. Scale insects may become a serious pest of wintercreeper. Propagate by dividing or by making cuttings.

Wintergreen, *Gaultheria procumbens*, Zones 5 to 7.—Wintergreen is an evergreen ground cover that grows well in acid soils and moist shady areas. It is a creeping plant that grows 4 inches tall. Propagate by dividing.

PLANTING

The selection of ground covers and methods of planting vary from region to region. Ground covers normally are used in areas where conditions are bad for plant growth, such as steep slopes, dense shade, dryness, poor drainage, or exposure to wind. Once ground covers are established, they usually need little care. But the site must be prepared thoroughly before it is planted.

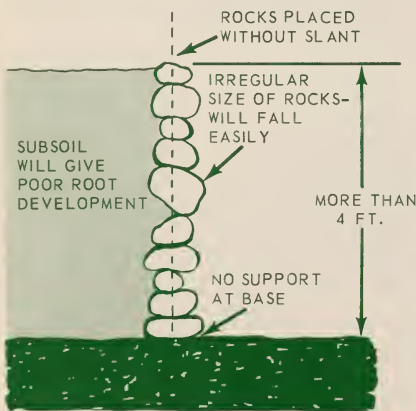
Dig the soil at least 6 inches deep.

Spread 2 to 3 inches of organic material such as peat, well-rotted manure, or leaf mold over the ground and spade it into the soil.

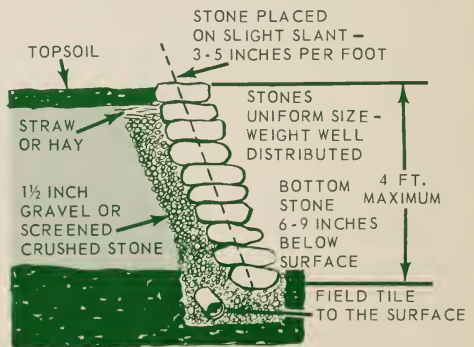
On uneven ground where the entire area cannot be worked, dig individual planting holes. Dig these deep enough so you can backfill partially with soil mixed with organic material before you set the plants. Use topsoil for the rest of the refill.

You can plant most slopes and

DRY STONE RETAINING WALL

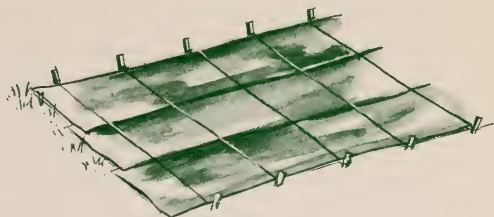
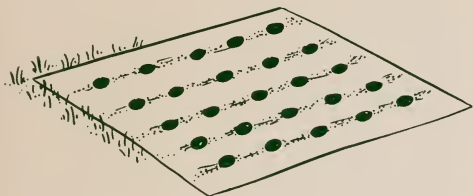


WRONG



RIGHT

STEPS IN PLANTING



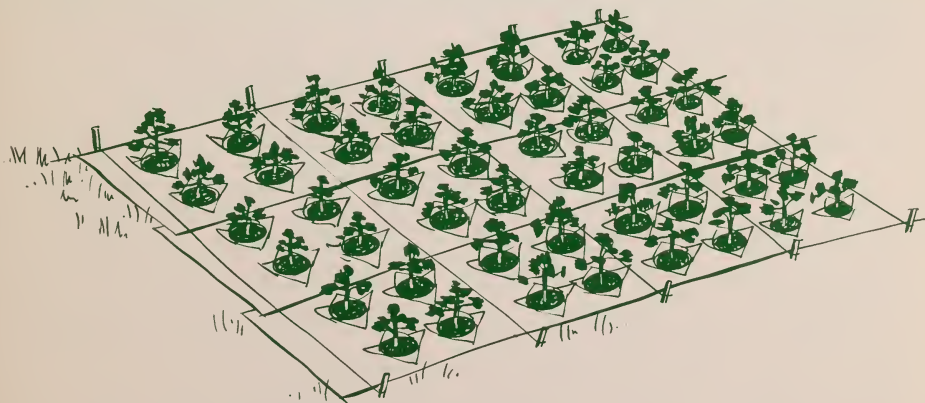
1 Prepare the planting site in the fall. Dig planting holes 4 to 6 inches wider and deeper than the plant root ball. Mix peat moss and organic matter in the planting holes. Space plants evenly over the site.

2 Place rolls of black plastic over the area to shade out weeds and retard water loss. Use three or four wide strips slightly overlapping. Tie down the plastic with rocks, wires, or stakes. You may cover the area with a mulch of organic matter instead of using plastic if you wish. Keep the mulch moist to keep it in place.



3 Cut an X slit in the plastic over each planting hole. Enlarge the slits to the proper size hole and set the plants through them.

4 Set the plants at the same level they were growing before they were transplanted. Fill the hole with good soil and pack the soil firmly around the roots. Leave a slight basin at the top to hold water. Water thoroughly after planting.



5 Keep the plants in place with an organic mulch over the plastic until the plants are established. Use a mulch of pine bark, wood chips, or hulls. Pull weeds by hand if they grow.

banks in ground covers. Low banks 2 to 4 feet high can be planted without any additional preparation, but you should build retaining walls at the foot of steep slopes to reduce the slope and help prevent erosion. Sloping areas are usually dry so you must select plants that will tolerate periodic drought. Usually large, vigorous plants such as junipers or cotoneasters are grown on slopes.

Use a fertilizer on the planting site when you prepare the soil. Follow recommendations generally used in your area. Fertilizer needs vary according to soil types in various parts of the country. Spade the fertilizer into the soil.

Except under extreme conditions, you should not alter the soil pH (the degree the soil is acid or alkaline) for specific plants. Generally, you should choose plants adapted to existing pH conditions. But when soils are extremely acid, you can improve them by using 10 to 25 pounds of dolomitic limestone per 100 square feet.

Although you can plant ground covers anytime during the growing season, early spring is the best time in

most localities. This allows the plants to become well established during a long growing period before winter.

When you plant ground covers, space them so they will cover the site as quickly as possible. You may put small plants like bugleweed as close as 4 to 6 inches apart. Set such large plants as juniper or cotoneaster as much as 4 feet apart. Closer planting will cover the ground more rapidly but the cost of additional plants may be prohibitive.

The following chart shows the area that approximately 100 plants will cover when set at various distances apart. For example, if you set the plants 4 inches apart, 100 plants will cover about 11 square feet.

<i>Planting distance (inches)</i>	<i>Area covered (square feet)</i>
4	11
6	25
8	44
10	70
12	100
18	225
24	400
36	900
48	1600

CARE OF PLANTS

A well-established ground cover planting usually needs little maintenance. Fertilizing, mulching, weeding, and watering are the main requirements.

Fertilize the plants in winter and again in early spring. To avoid burning the foliage, scatter a pelleted form of commercial fertilizer over the planting when the foliage is dry.

Ground covers are slower than grass in covering bare ground. Conse-

quently, weeds are likely to grow, especially the first year. A mulch of wood chips, straw, or other organic refuse will control most weeds, as well as retain moisture in the soil. Pull weeds by hand if they break through the mulch.

Do not dig around the plants. Digging breaks the roots and promotes germination of weed seeds.

Do not rely on summer rainfall to keep your ground covers watered.

Water on a regular schedule throughout the growing season, particularly during dry weather. Allow the water to penetrate deeply into the soil, but do not water so heavily that the soil becomes soggy. Water again when the soil is dry to the touch and the tips of the plants wilt slightly at midday. During the winter months, water the plants thoroughly when the weather is dry and the temperature is above freezing.

In cold climates with no permanent snow cover, plantings in direct sunlight may need protection during the winter months to prevent thawing of plant tissues. Direct sunlight can cause permanent damage. Lay conifer branches or burlap over the beds to protect the plants. If the plants heave out of the soil in cold weather, push them back immediately. Do not wait until spring.

Ground covers usually need pruning only to remove dead wood and keep the planting in bounds. You can

mow some plants that are grown on level ground.

Ground covers will show winter injury just as do other plants. Evergreen plants, for example, suffer considerable damage when the foliage has been burned following an extremely dry winter. You can shear such plantings or individually prune out damaged branches.

Plantings of juniper may be so badly winter damaged that soil areas become bare. When this happens, you should replant bare areas rather than wait until the old planting fills in the gaps.

You can reduce winter damage by covering the plants with a waterproofing spray. These sprays are available at garden supply stores. If you spray plants in the fall, they will retain the waterproof cover for most of the winter months. You also should spray plants when you transplant them.

PROPAGATION

The propagation of most ground covers is simple. Making cuttings and dividing are the most common methods. Annuals and some perennials can be seeded outdoors or seeded in flats and transplanted outdoors. Most of the larger plants such as junipers or cotoneasters are established from plants purchased from a nursery.

Making cuttings and dividing are discussed in this bulletin. For further information about propagation, see Home and Garden Bulletin 80, "Home Propagation of Ornamental Trees and Shrubs." Ask your county agricultural agent for a free copy or write the

Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250. Send your request on a post card. Include your ZIP Code in your return address.

Making Cuttings

Many plants can be propagated from either tip or root cuttings. Generally, tip cuttings are easier to propagate.

Before you take your cuttings, prepare a tray of peat pots. Use a soil mix of two parts sand, one part soil, and one part peat moss.

Make tip cuttings 3 to 6 inches

long. Treat the base of each cutting with a root stimulant. Rooting powders are sold in three strengths. Be sure to follow the directions on the can for the correct dosage.

Leave all foliage on the cuttings except the part that you put below the soil line. Insert one cutting in each peat pot. Water thoroughly.

Place the tray of tip cuttings in a lightly shaded area. Cover with a sheet of plastic. Check regularly to make sure the cuttings do not dry out.

The cuttings should start rooting in 10 to 30 days. You can test them by pulling gently to see if they are secure. When rooting starts, make holes in the plastic sheet to let air in and to increase the exposure of the cuttings to the air. This will harden the cuttings. Every few days make new holes, or make the holes larger.

Finally, remove the cover. Allow the cuttings to grow. Pinch back their tips 10 days after the cover is removed to promote branching. Transplant the rooted cuttings to a freshly prepared bed in midsummer.

Dig root cuttings in late summer. Select pencil-size roots and cut them into 4-inch sections. Put each piece in a peat pot. Water thoroughly. Keep the peat pots of root cuttings in a cold frame. Transplant them the next spring.

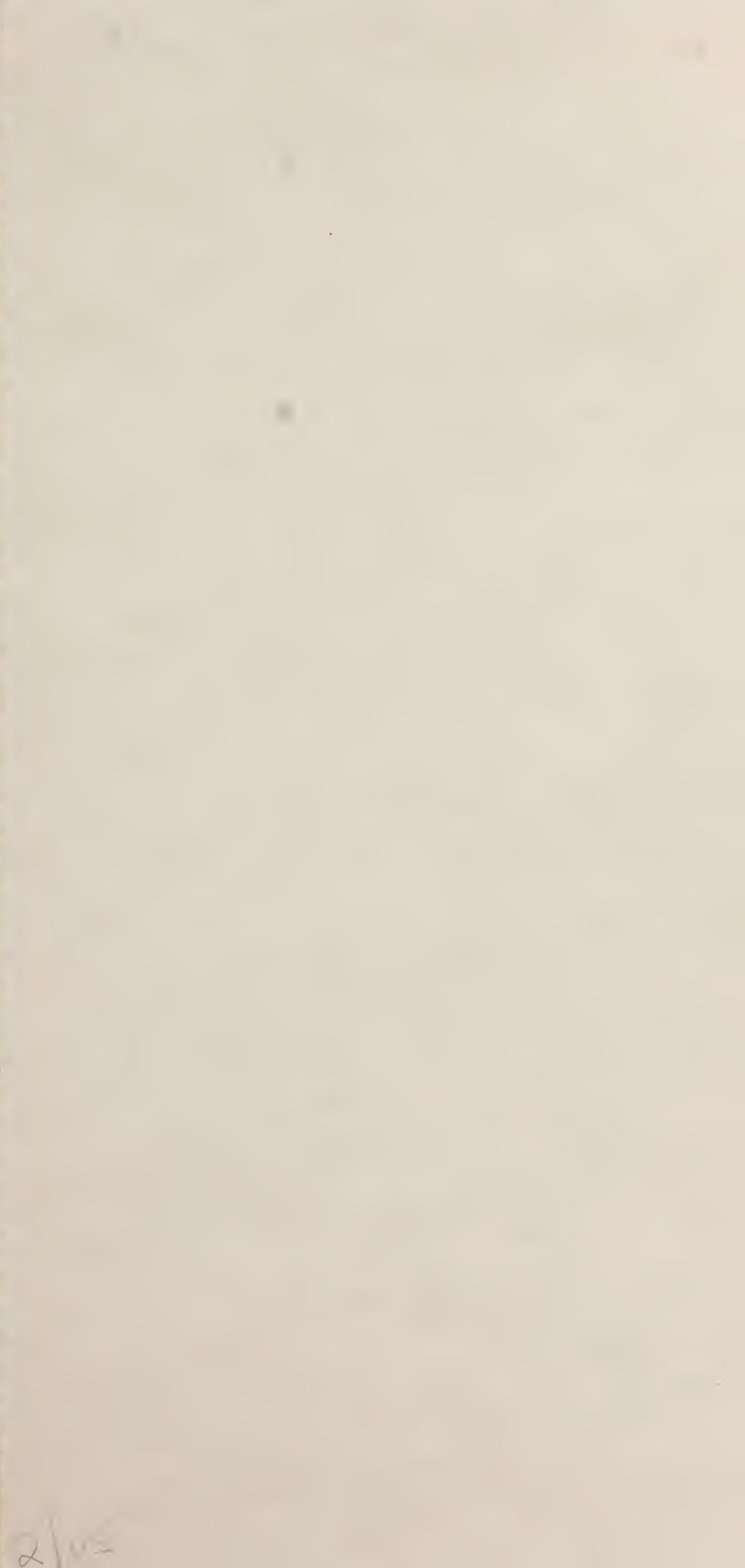
Dividing

Divide mature clumps of ground covers. Select only vigorous side shoots, the outer part of the clump. This is the part that will grow best. Discard the center of the clump.

Divide the plant into clumps of three to five shoots each. Be careful not to overdivide, because too small a clump will not give much cover the first year after replanting.

The best time to divide ground covers is late summer or fall in southern areas and in spring in northern areas.

When you divide ground covers, do not put all the divisions back into the same areas from which they came. That would be too many plants in the area and air circulation around them would be poor.



2/15

